*um*, and *Isoetes Tuckermani*. Of the *Musci*, *Hepaticæ*, and *Lichenes* the bulk have still to be worked up, so that it is impossible as yet to give an anyway accurate report of the total number of species found or additions made.

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## Elihu Hall.

BY MRS. J. M. MILLIGAN.

For want of sufficient data the publication of this brief tribute has been delayed.

Mr. Hall was born June, 1822, in Patrick county, Virginia, and died September, 1882. As a young man Mr. Hall was strong, healthy and full of ambition. In the winter of 1846, by severe over-exertion, he brought on an almost fatal hemorrhage from the lungs, and during the following years of his life he was subject to hemorrhages whenever his physical strength was overtaxed. This weakened condition of his body induced him to seek out-door recreation, not only as a means of obtaining such moderate share of health as might be his, but to find occupation for his active mind. He knew nothing of text-books, had never attended school, or had any scholarly associates, but

> "Nature, the old nurse, took
> The child upon her knee,
> Saying, 'Here is a story book
> Thy Father has written for thee.'"

And the "child" turned the leaves with an industrious hand and read many things about the bird, insect and plant life around him. With enthusiasm he noted every plant within his reach, made himself familiar with the characteristics of each species, and soon learned to classify them according to their general resemblances. He had never heard of drying plants to preserve them for specimens. In order that others might see what he had seen, he set to work with patient diligence to learn to draw and color each species as he gathered it fresh from the fields. Naturally his first attempts were crude and stiff, but his progress was rapid, for he copied only from the works of the Great Master, and he was armed with a sturdy determination to succeed. Colored drawings of three hundred and fifty species of plants were the result of his first summer's work, besides a number of well-executed drawings of birds, also colored. Mr. Hall was not long in discovering that others must have gone over at

least some of the same ground. He began to correspond with scientific men, sent for books, and a new world was opened to him. Botany, his favorite study, became more than ever a joy to him. He did not follow it for money or fame, never seeking to impress himself or his work upon others. He was one of Carlyle's pattern silent men, too occupied by his work to be drawn aside from it by the trivialities of social life. He became famous with scientific men at home and abroad, while his neighbors only knew him as the plain, honest "Eli" and a most trusty citizen. Mr. Hall had good mathematical abilities, and had made himself master of trigonometry and surveying. He was elected surveyor of Menard county, for which office he was fully competent. He ran his "lines" well, but on such tramps plants were his chief interest, and his field herbarium was more often consulted and added to than his "field notes." In his close observation of nature he resembled Thoreau, but his character in many things was rounded to a more agreeable perfection. His absorption in his loved science made no difference in the completeness with which he discharged all the duties of son, husband, father, neighbor and citizen. No labor that the comfort and welfare of others required was neglected in order that his favorite study might yield him its pleasures.

Although a member of no church organization, yet many instances are related of his Christian kindliness of character. It was said of him that there was no one whose friends would be more willing to send to heaven on his own merits than Mr. Hall, and no one who would be less willing to go on those grounds.

In the later years of Mr. Hall's life, when too feeble to go on collecting tours, he turned his attention to the study of shells. His collection of fresh water and land shells is probably the best in the State of Illinois. Some idea of the extent and value of his botanical collection may be gained from a mention of the sections of the United States that he had visited. He made extended trips into Colorado, Oregon, Texas, Arkansas and Michigan, and shorter trips into Missouri, Iowa, Kansas and Nebraska. He also made very complete collections of the plants of Central Illinois. His name is permanently associated with the plants of Oregon and Colorado. He discovered many new species, and the following list comprises a majority of the genera containing species named for him: Sticta, Rinodina, and Pilophorus, by Tuckerman; Bruchia, Campylopus, Conomitrium, Orthotrichum, and Archidium, by Austin; Juncus, by Englemann; Melica, by Vasey; Isopyrum, Viola, Aster, Aplopappus, Heuchera, Pentstemon, Dalea, Asclepias, Carum, Seseli, and Astragalus, by Gray.

Mr. Hall greatly enlarged his herbarium by extensive exchanges, both at home and abroad, and by additions from his botanic garden, in the cultivation of which he was wonderfully successful, making cuttings, seeds and roots grow that he collected on his various excursions and that were sent to him from all parts of the country. This garden was not only valuable scientifically, but was very lovely, even to those who had no botanical interest in it. On one side was a bank where those plants were placed that were sturdy enough to hold their own against native occupants, and these grew in the wildest luxuriance. For other plants, that could not unaided contend against the change of climate and soil, beds were carefully prepared and the foreigners alone were allowed to flourish in them. In other parts of the grounds curious and beautiful vines, shrubs and forest trees, in great variety, grew as if perfectly at home.

In a swampy hollow over fifty species of willow were planted. This garden afforded Mr. Hall much enjoyment. Many days of weakness and pain were made even beautiful to him while wandering among his plants with his wife and little ones, living over with them the delights of his pioneer collecting trips, when for the first time he saw this or that new species. Mr. Hall seemed indeed to be gifted with a more than usual share of that enthusiasm that envelops the possessor in an atmosphere of perpetual youth. It was said of him that be seemed two inches taller when he got into the woods, and his associates on his excursions used to declare that, although evidently far from strong, he tired them out, and it was difficult to keep up with him when on a botanical hunt.

There are some points in Mr. Hall's life which should not be passed over without special notice. One of these is the remarkable proficiency he attained through self-teaching; another, that he did not begin his education till after he had reached maturity; third, that he accomplished so much while contending against sickness. Curiously the love of nature slept within him unsuspected till the touch of suffering aroused his sleeping senses.

"And he wandered away and away
With Nature, the dear old nurse,
Who sang to him night and day
The rhymes of the universe.

"And whenever the way seemed long,
Or his heart began to fail,
She would sing a more wonderful song,
Or tell a more marvellous tale."

No doubt the sympathy and appreciation Mr. Hall met with in his home were potent aids to his success, but no one can see his herbarium and consider the labor, mental and physical, involved in amassing and classifying without being impressed with the great will power of this quaint, unconventional, manly character. "His work will not be forgotten or its effects lost."

NOTE.—Mr. Hall left his collections of plants, shells and insects in the care of Mrs. Hall, to be preserved by her till their youngest child is of age; then, if none of the children show a disposition to pursue these branches of study, all are to be disposed of.

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# GENERAL NOTES.

**Bryanthus Gmelini,** Don.—One of the most interesting re-discoveries of late is that of the above-named plant. Upon Behring Island, where it had long ago been found by Russian collectors, Dr. L. Steineger, U. S. N., last year collected a few specimens of this rare plant, which has afforded us an opportunity of examining the species. Three views have been held in respect to it. By Maximowicz it has been kept as the sole species of the genus; characterized by the 4-merous and octandrous flowers, with rotate and deeply 4-parted corolla. Bentham and Hooker keep up *Bryanthus*, adding to it the two American species of *Phyllodoce*, which have an open corolla, in one (*P. Breweri*) deeply 5-cleft, and stamens and style soon much exserted; in the other (*P. empetriformis*), merely 5-lobed, and stamens included. In the third place, I had brought the whole of *Phyllodoce* into the genus, making it a collective group of three sections. In this I was influenced by the analogy of *Cassiope*, in which the flowers are either 4-merous or 5-merous, and the corolla varies from 4 to 5-parted to 4 to 5-lobed. Now that I have seen the original *Bryanthus*, I should say that either the first or the third view may consistently be maintained. I should still prefer the latter. But the first has the advantage of giving us a genus which may be fairly distinguished from *Phyllodoce* on the one hand, while on the other it may be set against the nearly related *Loiseleuria*, distinguished by its 5-merous and 5-androus flowers, the corolla not so deeply parted, and the anther-cells dehiscent for their whole length.

Dr. Steineger's botanical collection from Behring Island and Copper Island (the Commander Islands, off the coast of Kamtschatka) contains many other plants of interest.— A. GRAY.

**Cement for Mounting Plants.**—Bisulphuret carbon, 4 ozs.; crude India rubber, sufficient quantity to make of the proper thickness. This is the best combination for the purpose of holding plants to mounting paper, as well as for other purposes, that can be made. It is always ready for use.—DR. J. H. OYSTER, *Paola, Kansas.*